

Informal Comments on the Written Opinion
of the International Searching Authority (Japanese Only)

An Examiner of the International Searching Authority set forth that claims 1-14 are unpatentable over cited document 1 (Japanese Patent Laying-open No. 02-248304), document 2 (Japanese Patent Laying-open No. 07-105750), document 3 (Japanese Patent Laying-open No. 02-207415), document 4 (Japanese Patent Laying-open No. 06-068726), and document 5 (Japanese Patent Laying-open No. 03-093110).

Claims 1-14 all require that a superconducting wire include a metal substrate, which is a textured metal substrate formed of metal atoms biaxially oriented and is planarized to have a surface layer extending from a surface thereof to a depth of 300 nm with a crystal axis having an offset angle of at most 25°, and a surface roughness R_{p-v} of at most 150 nm (*see* claims 1-14 and paragraphs 0016-0018 (p. 4, l. 23 - p. 6, l. 1 of the English translation of the international application as filed)). As such textured metal substrate is used, intermediate and superconducting layers deposited thereon can be significantly biaxially textured layers and a highly superconducting wire can thus be obtained (*see* paragraphs 0016 (p. 4, l. 23 - p. 5, l. 6 of the English translation of the international application as filed) and 0022 (p. 7, ls. 1-14 of the English translation of the international application as filed)).

In contrast, document 1 discloses a monocrystalline substrate (a monocrystalline MgO substrate). The document, however, neither discloses nor teaches a textured metal substrate. The monocrystalline substrate disclosed in the document is distinguished from a textured metal substrate, and if the monocrystalline substrate is planarized (or polished) there does not exist an offset angle of a crystal axis and there is not provided a surface with an oxide layer, and the surface's level in planarity is also significantly different. As such, document 1 could not be cited. Furthermore, document 1, disclosing the monocrystalline substrate, and documents 2-5, each disclosing a metal substrate, cannot be combined together.

Furthermore the Examiner asserts that it is well known to deposit a superconducting layer on a metal substrate or an intermediate layer deposited on the substrate. However, none of documents 2-5 discloses or teaches the combination of:

that the metal substrate is a textured metal substrate formed of metal atoms biaxially oriented;

that the substrate has a surface layer extending from a surface thereof to a depth of 300 nm with a crystal axis having an offset angle of at most 25°; and

that the substrate is planarized to have a surface roughness R_{p-v} of at most 150 nm.

We thus believe that claims 1-14 are unobvious to those skilled in the art, and thus patentable.